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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER

SHIFERAW, ELENI A

ART UNIT

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2436

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/527,570	Applicant(s) BOCKES ET AL.	
	Examiner ELENI A. SHIFERAW	Art Unit 2436	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 21 April 2009.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1, 14-20, 22-32 and 34 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1, 14-20, 22-32 and 34 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>12/29/2008</u> | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 04/21/2009 has been entered.

2. Claims 1, 14-20, 22-32 and 34 are pending.

Information Disclosure Statement

3. The information disclosure statement (IDS) submitted on 12/29/2008 has been considered. The submission is in compliance with the provisions of 37 CFR 1.97. Form PTO-1449 is signed and attached hereto.

Response to Amendment

4. The objection to the IDS is withdrawn in view of newly submitted IDS on 12/29/09.

5. The 101 rejection to claims 27-29 is still maintained. The 101 rejection to claims 1, 14-20, and 22-26 is withdrawn.

Response to Argument

6. Regarding argument Walmsley does not teach that this is a private key for use in an RSA method as amended and does not disclose any key parameters of this key Ka...(remark page 9-

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10), argument is not persuasive because according to par. 0486-0489 of Walmsley discloses in some cases protocol P2 uses asymmetric cryptography to secure and each chip containing Kt ChipT only. Public key for encrypting and does not have to be secret. See also par. 0944 for parameters (k1 and k2) contained in private key.

Claim Objections

7. Claims 30-31 are objected to: there is no antecedent basis for the phrase "a computer readable storage medium" Appropriate correction is required.
8. Claims 32 and 34 are objected to: there is no antecedent basis for the phrase "A portable data carrier" Appropriate correction is required.

Claim Rejections - 35 USC § 101

9. 35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

10. Claims (27-29) are rejected under 35 U.S.C. 101 based on Supreme Court precedent and recent Federal Circuit decisions, a 35 U.S.C § 101 process must (1) be tied to a particular machine or (2) transform underlying subject matter (such as an article or materials) to a different state or thing. In re Bilski et al, 88 USPQ 2d 1385 CAFC (2008); Diamond v. Diehr, 450 U.S. 175, 184 (1981); Parker v. Flook, 437 U.S. 584, 588 n.9 (1978); Gottschalk v. Benson, 409 U.S. 63, 70 (1972); Cochrane v. Deener, 94 U.S. 780, 787-88 (1876).

An example of a method claim that would not qualify as a statutory process would be a claim that recited purely mental steps. Thus, to qualify as a § 101 statutory process, the claim

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should positively recite the particular machine to which it is tied, for example by identifying the apparatus that accomplishes the method steps, or positively recite the subject matter that is being transformed, for example by identifying the material that is being changed to a different state.

Here, applicant's method steps are not tied to a particular machine and do not perform a transformation. Thus, the claims are non-statutory.

The mere recitation of the machine in the preamble with an absence of a machine in the body of the claim fails to make the claim statutory under 35 USC 101. *Note the Board of Patent Appeals Informative Opinion Ex parte Langemyer et al.*

11. Claims 30-31 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter. The claims recite "A computer program product including a computer-readable storage medium having a computer program stored thereon,..." According to applicant's disclosure par. 0018 the computer program product is "a non-physical medium, for example a signal communicated via a computer network... and used for connection..." Therefore the claim as a whole is interpreted a signal i.e. not statutory according to MPEP.

Claim Rejections - 35 USC § 103

12. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

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7. **Claims 1, 14-15, 17, 19-22, 25, 27, 30, and 32 are rejected under 35 U.S.C. 103(a) as being unpatentable Walmsley US PG Pubs 20030159036 in view Sabin USPN 6959091 B1.**

As to **claim 1**, Walmsley discloses a method for protected execution of a cryptographic calculation, in which a key with at least two key parameters is drawn on, wherein the key is a private key for use in an RSA method, **wherein each key parameter is contained in the private key (see par. 0486-0489; Use of an asymmetrical encryption algorithm allows the ChipT portion of System to be insecure. Protocol P2 therefore, uses asymmetric cryptography ...For this protocol, each chip contains the following values: ... Kt ChipT only. Public key for encrypting ... see also 0057-0066)**, wherein an integrity check of the key is performed (see *0944, 0628, 0629, and 0652; K1, ... K2, R, ... M*), in order to prevent a cryptographic attack in which conclusions are drawn as to at least one second key parameter by corrupting at least one first key parameter wherein each operation of the method for protected execution of the cryptographic calculation is executed by an integrated circuit (**0657, 0954-0957, 0545, 0601-0606**).

Walmsley discloses calculating random numbers and generating signature for the random number and calculating signature for decrypted random number (**see 0335-0350**) but does not explicitly teach and wherein the cryptographic calculation is one of a decryption in an RSA method and a signature generation in an RSA method.

However, Sabin discloses wherein the cryptographic calculation (**col. 8 lines 3-67; generating parameters p, q, kp, kq for private key**) is one of a *decryption* in an RSA method and a signature generation in an RSA method (**col. 4 lines 4-67 and col. 7 lines 59-67**).

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Therefore it would have been obvious to one having ordinary skill in the art at the time of the invention was made to modify the teachings of Sabin within the system of Walmsley because they are analogous in cryptography calculation. One would have been motivated to combine the teachings to further secure the RSA calculation.

As to claim 14, Walmsley discloses the method as claimed in claim 1, wherein in the integrity check it is determined whether the value of at least one key parameter is contained in a range of valid values, wherein the range is non-contiguous in that it has a plurality of gaps (Walmsley page 40, paragraph 0998).

As to claim 15, Walmsley discloses the method as claimed in claim 1, wherein in the integrity check it is determined whether at least two key parameters are in a predetermined relationship to one another (Walmsley page 40, paragraph 0998).

As to claim 19, Walmsley discloses the method as claimed in claim 1, wherein in the integrity check a checksum stored with the key parameters is compared with a checksum newly calculated after passing of the key parameters (Walmsley page 13, paragraphs 0036-034 and page 14, paragraph 0036).

As to claim 20, Walmsley discloses the method as claimed in claim 1, wherein, to check the integrity, important parameters to be passed are multiply passed and checked for identity after passing (Walmsley page 13, paragraphs 0036-034 and page 14, paragraph 0036).

As to claim 22, the modified Walmsley discloses the method as claimed in claim 1. The modified Walmsley does not explicitly teach wherein the RSA method is an RSA-CRT method.

However, Sabin discloses wherein the RSA method is an RSA-CRT method (col. 8 lines 42-52).

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It would be obvious to one of ordinary skill in the art at the time of the applicant's invention to combine the teachings because the RSA-CRT is a well know cryptographic calculation and to use these protected calculations would increase there security.

As to claim 25, Walmsley the method as claimed in claim 1 wherein the prime factors of the RSA method are multiplied by a masking parameter and the error freedom of the calculation sequence is checked by an equality check modulo the masking parameter (Walmsley page 4, paragraph 0089).

As to claims 27, 30 and 32, claims 27, 30 and 32 encompass the same scope of the invention as those of claims 1 and 26 with the additions of "computer readable storage medium" (Walmsley page 53, paragraph 1297) and portable data carrier (Walmsley page 4, paragraph 0098: smart card).

13. Claims 16-18, 23-24, 26, 28-29, 31 and 34 are rejected under 35 U.S.C. 103(a) as being unpatentable Walmsley US PG Pubs 20030159036 in view Sabin USPN 6959091 B1. and further in view of Ngo US PG Pubs 20030097628.

As to claim 16, the modified Walmsley discloses the method as claimed in claim 1. The modified Walmsley does not explicitly teach wherein the integrity check includes a multiplicative operation, in particular a divisibility test.

However, Ngo discloses wherein the integrity check includes a multiplicative operation, in particular a divisibility test (Ngo page 1, paragraph 0009).

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It would be obvious to one of ordinary skill in the art at the time of the applicant's invention to combine Ngo within the combination system because to use a divisibility test for an integrity check is a cheaper and a faster calculation (Ngo page 1, paragraph 0009).

As to claims 17 and 28, the modified Walmsley discloses the method as claimed in claim 1. The modified Walmsley does not explicitly teach wherein in the integrity check it is checked whether at least one of the key parameters is evenly divisible by a safeguard value.

However, Ngo discloses wherein in the integrity check it is checked whether at least one of the key parameters is evenly divisible by a safeguard value (Ngo page 2, paragraph 0026).

It would be obvious to one of ordinary skill in the art at the time of the applicant's invention to combine the teachings to again the divisibility check is cheaper and faster as well as if you use a predetermined value it adds to the assurance that there are no errors or whether or not corruption has occurred (Ngo page 2, paragraph 0026).

As to claim 18, the modified Walmsley discloses the method as claimed in claim 1. The modified Walmsley does not explicitly teach wherein in the integrity check it is checked whether at least one value which differs from one of the key parameters by a multiple of a safeguard value is evenly divisible by the safeguard value.

However, Ngo discloses wherein in the integrity check it is checked whether at least one value which differs from one of the key parameters by a multiple of a safeguard value is evenly divisible by the safeguard value (Ngo page 2, paragraph 0026).

It would be obvious to one of ordinary skill in the art at the time of the applicant's invention to combine the teachings to add another multiple as a blinding factor increases the security of the protected calculation (Ngo page 2, paragraph 0026).

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As to claim 23, the modified Walmsley discloses the method as claimed in claim 1. The modified Walmsley does not explicitly teach wherein in the cryptographic calculation at least one exponentiation operation is performed and in the integrity check it is checked whether the exponent used in the exponentiation operation is evenly divisible by a safeguard value.

However, Ngo discloses wherein in the cryptographic calculation at least one exponentiation operation is performed and in the integrity check it is checked whether the exponent used in the exponentiation operation is evenly divisible by a safeguard value (Ngo page 2, paragraph 0026).

It would be obvious to one of ordinary skill in the art at the time of the applicant's invention to combine the teachings because the divisibility check is cheaper and faster as well as if you use a predetermined value it adds to the assurance that there are no errors or whether or not corruption has occurred (Ngo page 2, paragraph 0026).

As to claim 24, the modified Walmsley discloses the method as claimed in claim 23. The modified Walmsley does not explicitly teach wherein in the cryptographic calculation an exponent blinding method is applied for protection against spying.

However, Sabin discloses wherein in the cryptographic calculation an exponent blinding method is applied for protection against spying (**col. 9 lines 10-29**).

It would be obvious to one of ordinary skill in the art at the time of the applicant's invention to combine the teachings because to add another multiple as a blinding factor increases the security of the protected calculation.

As to claims 26, 29, 31 and 34 the modified Walmsley discloses the method as claimed in claim 1. The modified Walmsley does not explicitly teach wherein at least one key parameter

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is the product of a value required for the cryptographic calculation times a safeguard value, and wherein the integrity check includes a divisibility check.

However, Ngo discloses wherein at least one key parameter is the product of a value required for the cryptographic calculation times a safeguard value, and wherein the integrity check includes a divisibility check (Ngo page 1, paragraph 0009 and page 2, paragraph 0026).

It would be obvious to one of ordinary skill in the art at the time of the applicant's invention to combine Walmsley and Ngo because the divisibility check is cheaper and faster as well as if you use a predetermined value it adds to the assurance that there are no errors or whether or not corruption has occurred and to add another multiple as a blinding factor increases the security of the protected calculation (Ngo page 1, paragraph 0009 and page 2, paragraph 0026).

Conclusion

14. Any inquiry concerning this communication or earlier communications from the examiner should be directed to ELENI A. SHIFERAW whose telephone number is (571)272-3867. The examiner can normally be reached on Mon-Fri 8:00am-5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nasser R. Moazzami can be reached on (571) 272-4195. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Eleni A Shiferaw/
Examiner, Art Unit 2436